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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,341	03/29/2001	Bernd Bienek	12758-023001	8536

26161 7590 01/13/2005

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EXAMINER	
BHATTACHARYA, SAM	

ART UNIT	PAPER NUMBER
2687	

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/806,341	Applicant(s) BIENEK ET AL.	
	Examiner Sam Bhattacharya	Art Unit 2687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-24 and 26-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-24 and 26-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 July 2004* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 22, 23 and 27 are rejected under 35 U.S.C. 103(a) as being anticipated by Oto (U.S. 5,604,746) in view of Alinikula et al. (US 6,115,593), and further in view of Nagode et al. (US 6,043,721).

As to claim 22, Figure 3 in Oto shows a receiver for receiving signals transmitted in subfrequency bands of a receive frequency band of a cellular mobile communication system (see also D1 to D4 in Figure 4(b)), comprising:

a first oscillator (16) to insert a carrier frequency into a receive path of the receive frequency band ("the received broadcasting signal output from the amplifier 13 is converted into an intermediate frequency signal in the 140 MHz band at a mixer 15 for mixing the received signal with a local oscillation signal from a variable local oscillation VCO (voltage controlled oscillator) 16, after being suppressed its image frequency region at a preselector 14" (Col. 1, lines 25-31));

a prefilter (18) to filter a first frequency band containing the signals out of the receive frequency band with the carrier frequency ("the output from the mixer 15 is amplified at a variable gain amplifier 17 and then limited in a desirable bandwidth at a BPF (band pass filter 18)" (Col. 1, lines 31-33));

a second oscillator (22) to insert an intermediate frequency into a first signal path of the first frequency band ("the phase detector 20 orthogonally detects an I-axis base-band signals by a phase detection on the input intermediate frequency signal based on an oscillation signal supplied from the VCO 22 through a separator 28" (Col. 1, lines 39-42));

a demodulator (20, 21) to demodulate the first frequency band with the intermediate frequency to generate a frequency baseband containing the signals; and a post filter (25) to filter a second signal frequency band containing the signals out of the frequency baseband ("the I axis and Q axis base-band signals output from the phase detectors 20, 21 are each shaped their waveforms at LPFs (low pass filter) 25, 26, and then digitized at A/D (analog to digital) converters 27, 28" (Col. 1, lines 49-52)).

However, Oto fails to disclose a second signal band amplifier to amplify a second frequency band.

The Alinikula reference teaches a second signal band amplifier to amplify the second frequency band ("the baseband I and Q signals, which at this stage also include the D.C. offset caused by the signals in the adjacent channels, are amplified in the low-frequency amplifiers 13, 14 and directed to the adders 15, 16" (Col. 4, lines 29-32). See also Figure 2a).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Oto-Alinikula to comprise a second signal band amplifier to amplify the second frequency band, as taught by Alinikula, in order to compensate D.C. offset in a receiver.

The combination of Oto and Alinikula fails to disclose a bypass connected in parallel with the second signal band amplifier for unamplified forwarding of the second frequency band.

However, the Nagode reference teaches a bypass connected in parallel with the second signal band amplifier for unamplified forwarding of the second frequency band ("a second bypass (250) is provided in the third amplifier stage, the second bypass to provide for signals in a second frequency band a signal path that bypasses the third amplifier" (Abstract, lines 8-11). See also Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the receiver of Oto-Alinikula to comprise a bypass connected in parallel with the second signal band amplifier for unamplified forwarding of the second frequency band, as taught by Nagode, in order to support dual-band amplifier.

As to claim 23, the Oto reference discloses the receiver of claim 22. However, it does not disclose the post-filter includes one of a low pass filter, a high pass filter and a high pass/low pass filter combination, the post filter having a cut-off frequency matched to at least one of the carrier frequency and the intermediate frequency to separate the second subfrequency band from neighboring frequency bands in the frequency baseband. The Alinikula reference teaches the post-filter includes one of a low pass filter, a high pass filter and a high pass/low pass filter combination, the post filter having a cut-off frequency matched to at least one of the carrier frequency and the intermediate frequency to separate the second subfrequency band from neighboring frequency bands in the frequency baseband ("the signal IF_I produced by the first mixer 7 is directed to the first

low-pass filter 9" (Col. 4, lines 3-4). "The mixing result IF_Q is directed to the second low-pass filter 11 and the high-pass filter 12" (Col. 4, lines 13-15). "The high-pass filter 12 removes the received, baseband signal from the signal produced by the second mixer 10" (Col. 4, lines 35-36). See also Figures 1-3, 4a-4b).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Oto-Gourgue to comprise the post-filter includes one of a low pass filter, a high pass filter and a high pass/low pass filter combination, the post filter having a cut-off frequency matched to at least one of the carrier frequency and the intermediate frequency to separate the second subfrequency band from neighboring frequency bands in the frequency baseband, as taught by Alinikula, in order to compensate D.C. offset in a receiver.

As to claim 27, Figure 3 in Oto shows the receiver of claim 22, further comprising: an analog/digital converter (27, 28).

2. Claims 16, 19, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,604,746 to Oto in view of Gourgue (U.S. Patent 5,619,536).

As to claim 16, the Otto reference discloses a method for receiving signals transmitted in subfrequency bands of a receive frequency band of a cellular mobile communication system (see D1 to D4 in Figure 4(b)), the method comprising:

obtaining a first signal frequency band containing the signals by adding a carrier frequency to the receive frequency band and by pre-filtering the receive frequency band ("the received broadcasting signal output from the amplifier 13 is converted into an

intermediate frequency signal in the 140 MHz band at a mixer 15 for mixing the received signal with a local oscillation signal from a variable local oscillation VCO (voltage controlled oscillator) 16, after being suppressed its image frequency region at a preselector 14. The output from the mixer 15 is amplified at a variable gain amplifier 17 and then limited in a desirable bandwidth at a BPF (band pass filter 18)" (Col. 1, lines 25-33). See Figure 3);

generating a frequency baseband containing the signals by adding an intermediate frequency to the first signal frequency band and by demodulating the first signal frequency band ("the intermediate frequency signal is branched off on two paths at a separator 19" (Col. 1, lines 33-35). "The phase detector 20 orthogonally detects an I-axis base-band signals by a phase detection on the input intermediate frequency signal based on an oscillation signal supplied from the VCO 22 through a separator 28. Also, the other phase detector 21 orthogonally detects a Q-axis base-band by the phase detection on the other intermediate frequency signal based on a 90° phase shift signal of the oscillation signal from the separator 28 through a 90° phase shifter 24" (Col. 1, lines 39-48). See Figure 3); and

performing post filtering on the frequency baseband to obtain a second signal frequency band containing the signals, wherein post-filtering comprises matching one or more of the carrier frequency and the intermediate frequency to at least one filter parameter; digitizing information in the second frequency band ("the I axis and Q axis base-band signals output from the phase detectors 20, 21 are each shaped their waveforms at LPFs (low pass filter) 25, 26, and then digitized at A/D (analog to digital) converters 27, 28" (Col. 1, lines 49-52)).

However, the Oto reference does not expressly disclose fine-filtering the digitized information to obtain the signals in digital form. The Gourgue reference teaches fine-filtering the digitized information to obtain the signals in digital form ("an analog/digital converter module 15 generating a digital signal on one bit followed by two channels 12, 13 in phase quadrature each comprising a decimation filter 9, 10 delivering digital information on n bits and connected to a baseband processing module 14" (Col. 2, lines 44-48). See also Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Oto to comprise fine-filtering the digitized information to obtain the signals in digital form, as taught by Gourgue, in order to eliminate out-band noise in the digital signals.

Oto-Gourgue fails to disclose amplifying the signals of the second signal frequency band or bypassing amplifying the signals of he second signal frequency based on a post-filter output level of the signals.

However, the Nagode reference teaches a bypass connected in parallel with the second signal band amplifier for unamplified forwarding of the second frequency band ("a second bypass (250) is provided in the third amplifier stage, the second bypass to provide for signals in a second frequency band a signal path that bypasses the third amplifier" (Abstract, lines 8-11). See also Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the receiver of Oto-Gourgue to comprise a bypass connected in parallel with the second signal band amplifier for unamplified forwarding of the second frequency band, as taught by Nagode, in order to support dual-band amplifier.

As to claim 19, Oto-Gourgue-Nagode discloses the method of claim 16, further comprising:

setting the carrier frequency to split off a neighboring frequency band of the second subfrequency band during prefiltering (Oto; "to select a desirable carrier from these data carriers D1 to D3, the oscillation frequency of the local oscillation variable VCO 16 must be offset so as to make the central frequency of the intermediate frequency signal output from the mixer 15 agree with the central frequency fd1, fd2 or fd3 of the desired carrier" (Col. 2, lines 27-32)).

As to claim 20, Oto-Gourgue-Nagode discloses the method of claim 16, further comprising:

digitizing the first signal frequency band wherein the frequency baseband is generated via digital demodulation (Oto; "the I axis and Q axis base-band signals output from the phase detectors 20, 21 are each shaped their waveforms at LPFs (low pass filter) 25, 26, and then digitized at A/D (analog to digital) converters 27, 28. The digitized signals are supplied to a digital processor 29 which demodulates them into their corresponding data sequences" (Col. 1, lines 49-54)).

As to claim 26, Oto-Alinikula-Nagode discloses the receiver of claim 22. However, it does not disclose the demodulator and at least a part of the post filter are arranged in a common integrated circuit. The Gourgue reference teaches the demodulator and at least a part of the post filter are arranged in a common integrated circuit ("according to the invention the receiver comprising antenna for picking up signals, means for converting an incoming signal to a predetermined intermediate frequency and baseband processing means is characterized in that it further comprises analog/digital

converter means and decimation filter means" (Col. 1, lines 47-54). "The proposed conversion process is easily implemented in an integrated circuit" (Col. 1, lines 61-62). See Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the receiver of Oto wherein the demodulator and at least a part of the post filter are arranged in a common integrated circuit, as taught by Gourgue, in order to keep the digital receiver small.

3. Claims 17, 18, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,604,746 to Oto in view of Gourgue (U.S. Patent 5,619,536) and further in view of Alinikula et al. (U.S. Patent 6,115,593).

As to claim 17, Oto-Gourgue-Nagode discloses the method of claim 16. However, Oto-Gourgue-Nagode does not disclose post-filtering the frequency baseband using one or more of a low pass filter, a high pass filter, and a high pass/low pass filter combination, the post filtering having a cut-off frequency that is matched to one or more of the carrier frequency and the intermediate frequency. The Alinikula reference teaches post-filtering the frequency baseband using one or more of a low pass filter, a high pass filter, and a high pass/low pass filter combination, the post filtering having a cut-off frequency that is matched to one or more of the carrier frequency and the intermediate frequency ("the signal IF_I produced by the first mixer 7 is directed to the first low-pass filter 9" (Col. 4, lines 3-4). "The mixing result IF_Q is directed to the second low-pass filter 11 and the high-pass filter 12" (Col. 4, lines 13-15). "The high-pass filter 12

removes the received, baseband signal from the signal produced by the second mixer 10" (Col. 4, lines 35-36). See also Figures 1-3, 4a-4b).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Oto-Gourgue-Nagode to comprise post-filtering the frequency baseband using one or more of a low pass filter, a high pass filter, and a high pass/low pass filter combination, the post filtering having a cut-off frequency that is matched to one or more of the carrier frequency and the intermediate frequency, as taught by Alinikula, in order to compensate D.C. offset in a receiver.

As to claim 18, Oto-Gourgue-Nagode discloses the method of claim 16. However, it does not disclose amplifying the second signal frequency band after post filtering has been at least partially performed. The Alinikula reference teaches amplifying the second signal frequency band after post filtering has been at least partially performed ("the baseband I and Q signals, which at this stage also include the D.C. offset caused by the signals in the adjacent channels, are amplified in the low-frequency amplifiers 13, 14 and directed to the adders 15, 16" (Col. 4, lines 29-32). See also Figure 2a).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Oto-Gourgue-Nagode to comprise amplifying the second signal frequency band after post filtering has been at least partially performed, as taught by Alinikula, in order to compensate D.C. offset in a receiver.

As to claim 24, Oto-Alinikula-Nagode-Gourgue discloses the receiver of claim 28. The Gourgue reference further teaches the second signal band amplifier and at least a part of the post filter are arranged in a common integrated circuit ("according to the invention the receiver comprising antenna for picking up signals, means for converting an

incoming signal to a predetermined intermediate frequency and baseband processing means is characterized in that it further comprises analog/digital converter means and decimation filter means" (Col. 1, lines 47-54). "The proposed conversion process is easily implemented in an integrated circuit" (Col. 1, lines 61-62). See Figure 2).

As to claim 28, Oto-Alinikula-Nagode discloses the receiver of claim 22, wherein the post filter includes: a common frequency and post filter control to match one of the carrier frequency and the intermediate frequency to at least one filter parameter to provide the second frequency band; an analog/digital converter to digitize information in the second frequency band ("the I axis and Q axis base-band signals output from the phase detectors 20, 21 are each shaped their waveforms at LPFs (low pass filter) 25, 26, and then digitized at A/D (analog to digital) converters 27, 28" (Col. 1, lines 49-52)).

However, Oto-Alinikula-Nagode does not disclose a digital filter to filter the signals out of the digitized information. The Gourgue reference teaches a digital filter to filter the signals out of the digitized information ("an analog/digital converter module 15 generating a digital signal on one bit followed by two channels 12, 13 in phase quadrature each comprising a decimation filter 9, 10 delivering digital information on n bits and connected to a baseband processing module 14" (Col. 2, lines 44-48). See also Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the receiver of Oto-Alinikula-Nagode to comprise a digital filter to filter the signals out of the digitized information, as taught by Gourgue, in order to eliminate out-band noise in the digital signals.

4. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,604,746 to Oto in view of Gourgue in view of Nogade in view of Alinikula et al., and further in view of Sawahashi et al. (U.S. Patent 5,748,623).

As to claim 21, Oto-Gourgue-Nagode discloses the method of claim 16, further comprising digitizing the filtered subfrequency band (Gourgue; "an analog/digital converter module 15 generating a digital signal on one bit followed by two channels 12, 13 in phase quadrature each comprising a decimation filter 9, 10 delivering digital information on n bits and connected to a baseband processing module 14" (Col. 2, lines 44-48). See also Figure 2). However, it does not disclose performing one of a high pass filtering and a combination of high-pass and low-pass filtering to filter out at least one subfrequency band in a range of the frequency baseband; and converting the digitized subfrequency band into a frequency range which contains a zero frequency value. The Alinikula reference teaches performing one of a high pass filtering and a combination of high-pass and low-pass filtering to filter out at least one subfrequency band in a range of the frequency baseband ("the signal IF_I produced by the first mixer 7 is directed to the first low-pass filter 9" (Col. 4, lines 3-4). "The mixing result IF_Q is directed to the second low-pass filter 11 and the high-pass filter 12" (Col. 4, lines 13-15). "The high-pass filter 12 removes the received, baseband signal from the signal produced by the second mixer 10" (Col. 4, lines 35-36). See also Figures 1-3, 4a-4b).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Oto-Gourgue-Nagode to comprise performing one of a high pass filtering and a combination of high-pass and low-pass

filtering to filter out at least one subfrequency band in a range of the frequency baseband, as taught by Alinikula, in order to compensate D.C. offset in a receiver.

However, Oto-Gourgue-Nagode-Alinikula does not disclose converting the digitized subfrequency band into a frequency range which contains a zero frequency value. The Sawahashi reference teaches converting the digitized subfrequency band into a frequency range which contains a zero frequency value (see Figures 9(a) to 9(c). See also (Col. 10, lines 19-40)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Oto-Gourgue-Nagode-Alinikula to comprise converting the digitized subfrequency band into a frequency range which contains a zero frequency value, as taught by Sawahashi, in order to extract a desired signal.

Response to Arguments

1. Applicant's arguments filed on 7/19/04 have been fully considered but they are not persuasive.

Applicant argues that the Oto, Gourgue, Alinikula or Nagode references, taken separately or in combination, are not understood to disclose or suggest "amplifying the signals of the second signal frequency band or bypassing amplifying the signals of the second frequency based on a post-filter output level of the signals."

The Examiner respectfully disagrees. The Alinikula reference teaches a second signal band amplifier to amplify the second frequency band ("the baseband I and Q signals, which at this stage also include the D.C. offset caused by the signals in the adjacent channels, are amplified in the low-frequency amplifiers 13, 14 and directed to

the adders 15, 16" (Col. 4, lines 29-32). See also Figure 2a). Moreover, the Nagode reference teaches a bypass connected in parallel with the second signal band amplifier for unamplified forwarding of the second frequency band ("a second bypass (250) is provided in the third amplifier stage, the second bypass to provide for signals in a second frequency band a signal path that bypasses the third amplifier" (Abstract, lines 8-11). See also Figure 2). The Nagode reference further explains that buffer 100 generates a filtered signal, containing the modulated information signal, at input 103 of amplifier 104. Amplifier 104 is a power amplifier to amplify the modulated information signal supplied thereto to power levels adequate for transmission through antenna 106 under the control of power control signals input at control input 109. Thus, the limitation of bypassing amplifying the signals of the second frequency based on a post-filter output level of the signals is clearly taught by the Nagode reference.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Bhattacharya whose telephone number is (703) 605-1171. The examiner can normally be reached on weekdays 8:30 a.m. to 6:00 p.m., first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (703) 305-3016. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sb

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